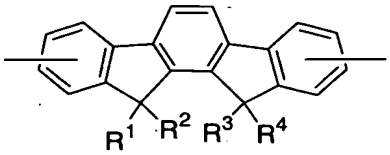
Claims

1. An oligomer or polymer comprising an optionally substituted first repeat unit of formula (Ir):



(Ir)

wherein R^1, R^2, R^3 and R^4, which may be the same or different, are independently selected from hydrogen or a substituent and two or more of R^1, R^2, R^3 and R^4 may be linked to form a ring.

2. An oligomer or polymer according to claim 1 wherein each R^1, R^2, R^3 and R^4 is independently selected from the group consisting of optionally substituted alkyl, alkoxy, aryl, or heteroaryl.

3. An oligomer or polymer according to claim 1 or 2 wherein at least one of R^1, R^2, R^3 and R^4 is optionally substituted phenyl or optionally substituted C_{1-20} alkyl.

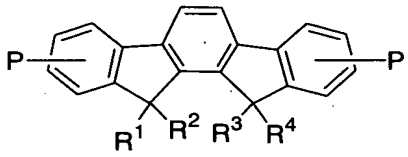
4. An oligomer or polymer according to claim 3 wherein at least one R^1, R^2, R^3 and R^4 is different from at least one other of R^1, R^2, R^3 and R^4.

5. An oligomer or polymer according to any preceding claim wherein the first repeat unit is linked through the 2- and 9-positions.

6. An oligomer or polymer according to any preceding claim wherein the oligomer or polymer comprises a second repeat unit.

7. An oligomer or polymer according to claim 6 wherein the second repeat unit is selected from optionally substituted aryl, heteroaryl and triarylamine repeat units.

8. An optionally substituted monomer of formula (Im):



(Im)

wherein R^1, R^2, R^3 and R^4, which may be the same or different, are independently selected from hydrogen or a substituent and two or more of R^1, R^2, R^3 and R^4 may be linked to form a ring; and each P represents a polymerisable group.

9. A monomer according to claim 8 wherein each P represents a leaving group capable of participating in a polycondensation mediated by a metal of variable oxidation state.

10. A monomer according to claim 9 wherein each P is independently selected from halogen; a moiety of formula -O-SO_2-Z wherein Z is selected from the group consisting of optionally substituted alkyl and aryl; or a reactive boron group selected from a boronic acid, a boronic ester or a borane.

11. A process for preparing an oligomer or polymer comprising the step of oligomerising or polymerising a monomer according to any one of claims 8-10.

12. A process for preparing an oligomer or polymer according to claim 11 as dependent on claim 10 wherein each P is independently a halogen or a moiety of formula -O-SO_2-Z, and the monomer of formula (Im) is oligomerised or polymerised in the presence of a nickel complex catalyst.

13. A process for preparing a polymer according to claim 11 as dependent on claim 10 wherein the monomer of formula (Im) is oligomerised or polymerised with a second aromatic monomer in the presence of a palladium complex catalyst and a base and

a. each P is the same or different and comprises a reactive boronic group and the second monomer comprises two reactive groups independently selected from halogen and a moiety of formula -O-SO_2-Z, or

b. each P independently comprises a halogen or a moiety of formula -O-SO_2-Z and the second monomer comprises two reactive boron groups which are the same or different

14. A process for preparing an oligomer or polymer according to claim 11 as dependent on claim 10 wherein one P is a reactive boron group and the other P is a halogen or a moiety of formula -O-SO_2-Z.

15. An optical device comprising an oligomer or polymer according to any one of claims 1-7.

16. An optical device according to claim 15 wherein the oligomer or polymer is located between a first electrode for injection of charge carriers of a first type and a second electrode for injection of charge carriers of a second type.

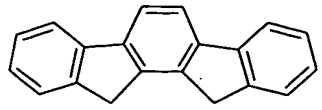
17. A switching device comprising an oligomer or polymer according to any one of claims 1-7

18. A field effect transistor comprising an insulator having a first side and a second side; a gate electrode located on the first side of the insulator; an oligomer or polymer according to any one of claims 1-7 located on the second

side of the insulator; and a drain electrode and a source electrode located on the oligomer or polymer.

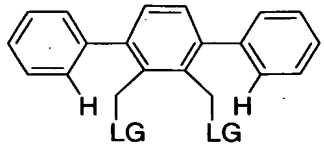
19. An integrated circuit comprising a field effect transistor according to claim 18.

20. A method of forming an optionally substituted compound of formula (I):



(I)

comprising the step of eliminating LG-H from an optionally substituted compound of formula (Ip):



(Ip)

wherein each LG is the same or different and represents a leaving group.

21. A method according to claim 20 wherein each LG is hydroxy.

22. A method according to claim 20 or 21 wherein the elimination is performed in the presence of an acid.

23. A method according to claim 21 wherein the acid is polyphosphoric acid.

24. A method according to any one of claims 20-23 comprising the further step of providing a polymerisable group P on each of the outer phenyl rings of the compound of formula (I) or (Ip).